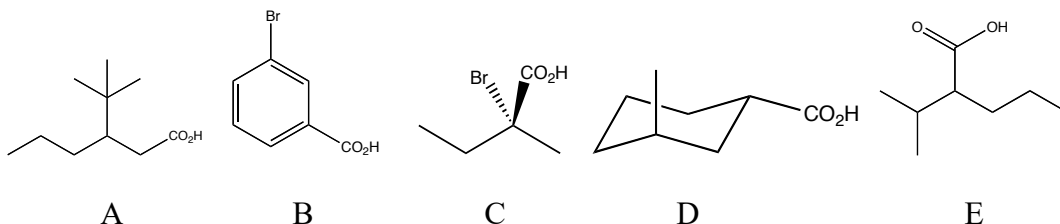


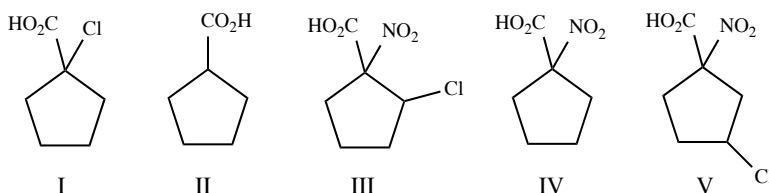
Chapter 21 Carboxylic Acids

Practice Problems

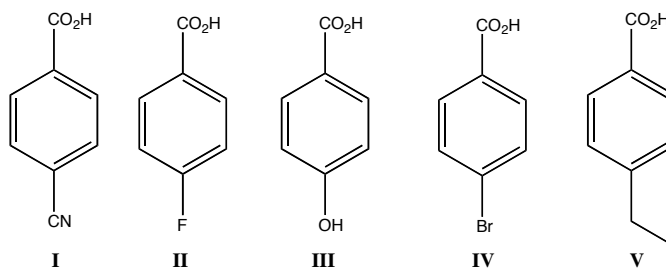
1. Provide IUPAC names for the following compounds :



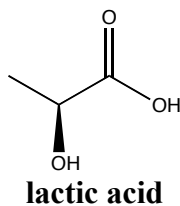
2. Arrange the following compounds according to their expected acidity (most >> least):



3. Predict the relative acidities of the following series of benzoic acids:



4. Lactic acid is produced in muscles during use. Under high demand situations, lactic acid is produced faster than it can be removed from the muscle tissue, and this leads to the “burn” felt during situations of high intensity muscle use (such as sprinting). Lactic acid is also the compound produced in sour milk.



A. In the lab, racemic lactic acid may be produced via the following series of reactions. Draw the predicted products of each step and draw both of the enantiomers formed during the reactions when a stereogenic (chiral) center is created:



B. Naturally produced lactic acid is a single enantiomer. What is the configuration (R or S) of the chiral carbon (as shown in the structure above)?

5. The representative reactions below utilize the reagents discussed in this chapter, or earlier, regarding the synthesis or reactions of carboxylic acids. For each of the following reactions, provide the missing component (starting material, reagent(s), or product) as necessary:

